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ABSTRACT

The Summer Technical Institute project was funded by the Arizona Department of Education to encourage sex equity in vocational education in the state. The project was designed to (1) encourage young women to consider technical careers, (2) provide activities to promote success and self-confidence, (3) provide an opportunity for young women to interact with successful role models, (4) encourage them to plan nontraditional careers, and (5) give young women the opportunity to apply mathematical concepts in technology. Following a literature review, a pilot program was developed and two pilot Summer Technical Institutes were conducted at Northern Arizona University during June 1986. To achieve the objectives of the project, the instructional component was divided into three major elements: computer awareness, career decisions, and production processes. Applications of science and mathematics were incorporated in the production processes unit. Another aspect of the institute's design dealt with the need of the participants for socialization and belonging during their week away from home. Student participants and adult leaders rated the program highly. (This report represents the last phase of the project. It incorporates the evaluations and ideas of students, business participants, and advisory members, as well as the instructional staff. Intended to serve as a model, the guide describes the processes involved in creating and carrying out the Summer Institutes at Northern Arizona University. Documents used for the project as well as newspaper items and other publicity materials are provided in extensive appendixes to the report.) (KC)

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SUMMER TECHNICAL INSTITUTE

FINAL REPORT

by

Beth Packard

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

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The Arizona Center for Vocational Education

Northern Arizona University

Flagstaff, Arizona 86011

September, 1986

CE 04-376

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FUNDING INFORMATION

Project Title: Summer Technical Institute

Funding Act: Education Amendments of 1976, P.L. 94-482

Source of Contract: Arizona Department of Education
Phoenix, Arizona

Contractor: The Arizona Center for Vocational Education
Northern Arizona University
Flagstaff, Arizona 86011

Disclaimer: This publication was prepared pursuant to guidelines of the Summer Technical Institute Project, a funded project by the Arizona Department of Education. Contractors undertaking such projects under government sponsorship are encouraged to express freely their judgement in professional and technical matters. Points of view or opinion do not, therefore, necessarily represent official Arizona Department of Education position or policy.

Discrimination Prohibited: Title VI of the Civil Rights Act of 1964 states: "No person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." Title IX of the Education Amendments of 1972 states: "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance." Therefore, the Arizona Center for Vocational Education Project, like every program or activity receiving financial assistance from the Arizona Department of Education, must be operated in compliance with these laws.

FOREWORD

Research indicates young females are diminishing their career options by their choices of courses in school. Insufficient early experiences and knowledge in math, science and technical vocational education exclude women from many technical careers. Societal factors also impact females' desire to pursue nontraditional careers such as those grounded in technology. For these reasons, a technical institute for young women was devised as a means of increasing motivation, interest, and achievement of females towards careers in technology.

ACKNOWLEDGMENTS

With any effort of this magnitude, the assistance of many is required. I wish to make special mention of Deborah Spickerman who assisted me in every facet of program development and the production of the publication. The project's advisory council was especially committed to the Summer Technical Institutes. Representing business and agencies in northern Arizona, they gave untiringly of their time and expertise. Each council member advised throughout the program design phase and later served as presentors during the implementation of the Institute. Their evaluation of the Institute was critical to the development of this model. A complete listing of those advising the program follows:

Northern Arizona University;
- Paul Dale, Career Development
- Pat Nava-Osorno, Engineering College
- Micheal Stowe, Upward Bound
- Teresa Stremel, Design & Technology

Flagstaff Public Schools;
- Rae Harvey, Math/Computer Instructor
- Chris Wannie, Electronics Instructor

W.L. Gore and Associates;
- Ken Ralston, Engineering
- Bobbi Stalnaker, Personnel
- Anita Switzer, Engineering

Packard Electric;
- Christine Nelson

City of Flagstaff;
- Kris Dellinger, Engineering
- Vicki France, Engineering

Also, the following companies assisted in various capacities with the Institute and are recognized:

- W.L. Gore and Associates
- Comtec Economation, Incorporated
- Mountain Bell
- Pepsi Cola
- Sperry Corporation
- Hughes Aircraft Company
- Garrett AiResearch
- Mack Corporation

Special thanks are also due Hyatt Simpson and Carole Ferlazzo for editing, Dr. Jerry Cox and Kathy Dunn for publication assistance, Jeanette Warzabluk for formatting and artistic display, Sarah Lovejoy for word processing and Peggy Pavlich for photography. Ms. Jenny Erwin, Sex Equity Specialist for the State of Arizona, provided leadership for the design of the project and served as technical supervisor. The Institute instructors, Rae Harvey and Dr. Robert Wooldridge and the counselors, Christy Krone and Natalie Harlan were instrumental in the design and success of the Institutes.

Robert V. Kerwood
Director
Arizona Center for
Vocational Education

Don Parsons
Manager
Arizona Center for
Vocational Education

Beth Packard
Project Director
Arizona Center for
Vocational Education

EXECUTIVE SUMMARY

The Summer Technical Institute Project was funded by the Arizona Department of Education to encourage sex equity in vocational education in Arizona. The project was designed to:

1. Encourage young women to expand their horizons and consider technical careers.
2. Provide structured activities which will promote success and develop confidence in personal abilities.
3. Provide an opportunity for females to interact with successful role models.
4. Provide women with support and encouragement to plan nontraditional careers, especially technical careers.
5. Give young women the opportunity to successfully apply math concepts in technology.

The project progressed through several developmental phases. First, a literture review was conducted to determine characteristics of the target population that might be addressed in the program design. Next, the pilot program was developed, complete with units of instruction and instructional activities. Subsequently, implementation features were instituted, such as marketing, instructional support and scheduling. A report of these facets of program design may be found in the model publication.

Two pilot Summer Technical Institutes were conducted, during June of 1986. To achieve the objectives of the project, the instructional component was divided into three major elements: (1) Computer Awareness, (2) Career Decisions, and (3) Production Processes. Applications of science and math were incorporated in the production processes unit. Another aspect of the Institutes' design dealt with the need of the participants for socialization and belonging during their week's stay away from home. Each of these facets are explained in the model section of this publication.

The publication, EXPANDING OPTIONS IN TECHNOLOGY, represents the last phase of the project. This model product culminated from prior phases of program development. It incorporates the evaluations and ideas of students, business participants, and advisory members, as well as the instructional staff. The processes described are meant only as a guide to assist others wishing to adapt this Arizona model to their own particular environment.

PROJECT OBJECTIVES AND ACCOMPLISHMENTS

Objective 1: Two summer technical training institutes will be conducted focusing on high labor market demand areas identified by ADE and LMT.

Accomplishment: Two Summer Technical Institutes for Young Women were conducted consecutively during June, 1986. Those dates were made necessary due to the cooperative arrangements between this project and Upward Bound. This cooperation saved the Institute $50 per person for room and board. It enabled the Institute to gain planning information and provided training for Institute counselors.

A. One focus of the institute was electronics. Participants built a working transistor radio which was taken home at the end of their one-week stay.

B. Fifty-one girls between the ages of 13 and 19 years of age attended the two Institutes.

C. Several types of evaluation processes occured. First, students evaluated their experiences. A composite of this evaluation may be found in the Appendix. Second, the advisory council, the instructors, the counselors, and business speakers provided a written summary of their comments. These are on file at the Arizona Center for Vocational Education. Third, the advisory council met at the conclusion of the Institute, reviewed the evaluations and made recommendations. Fourth, an evaluation instrument as outlined by the Advisory Committee, was mailed to each of the 51 participants in September to see what changes in attitudes or behaviors may have resulted from the Institute. A copy of the questionnaire and early results may be found in the Appendix.

Objective 2: Linkages with business and industry will have been developed.

Accomplishments:

A. A variety of linkages were necessary for the success of the Institutes. First, both large and small firms representing electronics and various technical firms were contacted for assistance in identifying instructional components of the Institute and to participate as demonstrators or presentors. Second, agencies representing high technology were contacted and were involved in the Institute. These included the city of Flagstaff Engineering Department, NAU's College of Engineering and the U.S. Geological Survey. Third, various agencies and service organizations were contacted for assistance to participants (scholarships).

B. A complete list of the more than 80 individuals who participated in making the Institutes possible is on file at the Arizona Center for Vocational Education. A summary of the participating businesses, types of services and hours donated may be found in the Appendix.

Objective 3: Student skills and the application of those skills will be documented.

Accomplishments:

A. The target audience was young girls ages 14 to 15, however, others were encouraged to attend. Ages of the participants ranged from 13 to 19.
   1. Students used the algorithm processes of thinking. The importance of math and science was continually emphasized. Evidence is the responses from the September evaluation.
   2. Students applied math and science in computer and electronics laboratory settings.
   3. Female role models discussed attributes of success. The "I can't" idea was discouraged. Girls adopted an "I can" philosophy. Evidence is the responses obtained from the September evaluation instrument.
   4. Students applied electronics and related principles and skills in two hands-on laboratories. They attended a computer lab for an hour and a half for five mornings. An electronics lab was held for about the same amount of time. Students learned to solder and assembled a small transitor radio for their project.
   5. All types of jobs and careers were presented by role models throughout the Institutes in the business and classroom sites through informal lessons. These were later reinforced through discussions during the closure portion of the day.

Objective 4: A minimum of 50 students will be served in the institute. Accomplishment of this objective will be evidenced by a roster of particpants and evaluation by the participants.

Accomplishment: A total of 51 participants benefitted from the two Institutes. A complete roster and summaries of the evaluations may be found in the Appendix.

Objective 5: A design model will be developed that can be duplicated in other parts of the state.

Accomplishment: A design model of the Summer Technical Institute was produced and published. Budgeted printing monies were largely absorbed in the Institute implementation stage of the project. A tuition excess provided funds for the 150 copies of the model. A copy of EXPANDING OPTIONS IN TECHNOLOGY, may be found attached.

Objective 6: A description, in poster form, of the model program will be written and printed for statewide dissemination to promote the model.

Accomplishment: A description of the model may be found in the Appendix. It may be disseminated at the discretion of the Arizona Department of Education.

PROJECT RECOMMENDATIONS

Summer Technical Institutes are but one way to impact job stereotyping. This method has been proven to be effective in altering career perceptions and behaviors of young women, as evidenced by evaluations of the impact. Young women, as well as men, need to acquire the skills necessary for our complex society. To accomplish this, young girls must perceive their world to be full of options with a future they can create.

APPENDIX A

Marketing and Publicity Efforts

ANNOUNCEMENT

SUMMER TECHNICAL INSTITUTES FOR YOUNG WOMEN

ATTENTION: TEACHERS, COUNSELORS, ADMINISTRATORS

Two, one week, Summer Technical Institutes for Young Women are being offered at Northern Arizona University in June. Focus will be on technical careers such as those in electronics, computers, design, and engineering. Projects will be completed in electronics and computers at the labs on campus. Business and industry are actively involved in planning and will be providing personnel as successful role models.

DATES: June 8 - 14 and June 15 - 21, 1986.

POPULATION: Girls, ages 14-16, will be nominated from throughout the state. Each institute is planned for twenty-six participants.

COSTS: Tuition per student is $150.00. A portion of this fee may be waived if, on a scholarship basis, sponsors can be obtained to cover costs of room, board, and incidental costs. Scholarships will be awarded based on financial need.

INSTRUCTION: Instructional personnel will be assisted by representatives from business and industry. Technical careers will be explored through a variety of hands-on activities. Career development will include self-assessment of skills, interests, values and aptitude.

SELECTION PROCESS: Young women may be nominated by a school official or agency. They will be selected to participate based upon interest and aptitude in math, science, electronics, or technical areas. To nominate a young woman, submit by April 1st the following:

* A letter of nomination by a school official
* A letter of interest and a completed application by the student (Please note if a scholarship is requested.)

For more information contact:
Beth Packard, Project Director
Arizona Center for Vocational Education
NAU Box 6025, Flagstaff, AZ 86011
Phone: 523-5442

Sun 4/15/86

Hands-On Experience

Mountain Bell central office technician Ed Comstock assists Twanna Anderson of Glendale in assembling a transistor radio during the Summer Technical Institute for Young Women at Northern Arizona University. The project is just one of several activities which exposes girls to technological trades and careers during the weeklong event which is sponsored by the Arizona Center for Vocational Education, a division of the Center for Excellence in Education.

(NAU Photo)

Professionals Share Technical Expertise

Sun 4/15/86

NAU NEWS AND PUBLICATIONS

Several representatives from local offices of state, regional and national organizations are participating in the Summer Technical Institute for Young Women at Northern Arizona University.

Girls, ages 14-16, from throughout Arizona attend one of two weeklong sessions. One was last week and one is today through Saturday. There they meet professional women and men working in technical fields. fields.

The institute is designed to motivate girls to pursue careers in electronics, computers, design, engineering and other fields which typically pay more than occupations traditionally held by women.

The program, involving 51 girls of various ethnic backgrounds, is sponsored by the Arizona Center for Vocational Education, a division of the Center for Excellence in Education.

Participating organizations represented locally include: Mountain Bell; W.L. Gore and Associates; Mack Corp.; Comtec Economation Inc.; City of Flagstaff; U.S. National Park Service; U.S. Geological Survey; and NAU's College of Engineering and Technology and School of Health Professions.

Soroptimist Scholarship Winner

The Soroptimist International Club of Flagstaff East recently presented a scholarship to Rena Scott, a freshman at Red Mesa High School. The scholarship will be used by Scott to attend the Summer Technical Institute for Young Women at Northern Arizona University. Classes will stress basic computer programming and electronics and give young women exposure to non-traditional careers. Left to right are: Rea Harvey, instructor, Scott; Beth Packard, Soroptimist Club, and Chris Wannie, instructor.

(SUNfoto)

—The SUN, Flagstaff, Arizona, Monday, April 7, 1986

NAU Summer Technical Institutes Planned for Girls

NAU NEWS AND PUBLICATIONS

Summer Technical Institutes for Young Women, sponsored by the Arizona Center for Vocational Education at Northern Arizona University, are designed to motivate girls 14-16 to pursue careers in electronics, computers, design, engineering and other technical fields which typically pay more than occupations traditionally held by women.

"All the research shows that women have career potential that is not being realized. The intent of the institutes is to encourage girls to expand their horizons by considering and experiencing technical careers," said Beth Packard, ACVE manager of special projects.

Two institutes accommodating 32 students are scheduled at the NAU campus June 8-14 and June 15-21.

Learning activities include computer training, technical projects, introduction to women in technical careers, field trips and career exploration.

Representatives from business and industry also will participate in classroom instruction and activities including self-assessment of skills, interests, values and aptitudes.

Tuition for a one-week institute is $150 which includes room and board. Tuition, in-town transportation and classroom materials. Scholarships are available based on financial need.

Interested girls with skills in science and math from throughout Arizona must be nominated to attend a summer technical institute. Needed for nomination are a letter of nomination by a school official, teacher or counselor and a letter of interest by the nominee.

Nomination information should be received no later than April 22 by the Arizona Center for Vocational Education, Box 6025, NAU, Flagstaff 86011. Students selected to attend an institute will be notified the week of April 28.

For more information, call 523-5442 or 523-3096.

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Northern Arizona University
PUBLIC INFORMATION OFFICE
BOX 4101
FLAGSTAFF, ARIZONA 86011

To Beth Congrats BK

TO: Beth Packard-ACVE BP
Bob Kerwood-ACVE BK
Dave Williams-CEE

FROM: Peggy Pavlich-UNP

RE: Non-traditional"publicity"

Attached please find Mountain Bell newsletter and correspondence concerning this past summer's Summer Career Institute.

As you will remember, I submitted information to most of the participants' public relations departments.

Here is one example of utilizing non-traditional "media" to talk to an important audience.

PEGGY PAVLICH
SEP 1 1986

Mountain Bell

Phoenix, Arizona
July 30, 1986

Ms. Peggy Pavlich
Information Specialist
Northern Arizona University
Flagstaff, Arizona 86011

Dear Peggy,

Enclosed for your files are copies of a Mountain Bell employee newsletter in which we used the photograph you provided.

Thanks for your consideration. I think it worked well both as an acknowledgment of one employee's volunteer work and as an example of how one can use on-the-job skills in community service. We would welcome similar material in the future.

Of several comments I received, perhaps the most notable was from an employee who spotted the misspelling of mathematics on the student's T-shirt!

Again, thanks for thinking of us, Peggy.

Sincerely yours,

Mike Gustafson
Assistant Staff Manager

MB TIMES

ARIZONA REPORT

Mountain Bell
A US WEST COMPANY

July 3, 1986

Arizona youth third in national Citizen Bee

Joel Kuester, one of the top finishers in the Arizona Citizen Bee competition sponsored by Mountain Bell, was among the finalists in last week's national competition in Washington, D.C.

Joel, who lives in Scottsdale and will be a senior this fall at Coronado High School, placed third in the National Citizen Bee. He received a $1,000 scholarship and two sets of the *Encyclopædia Britannica*, one for himself and another for his school.

The Citizen Bee is like a spelling bee. Students answer questions about American history, government, economics, geography and current issues. The national competition was presented by the Close Up Foundation, an organization which promotes citizenship education for students and adults.

Joel was one of five Arizona students who advanced to the national contest. Also making the trip to Washington, D.C., were Michael Gartrell, Horizon High School, Scottsdale; Kirk Hawkins, Camelback High School, Phoenix; Peggy Scheier, Morenci High School, Morenci; and Todd Severance, Sahuaro High School, Tucson.

The competition wasn't the only excitement for the group. During their week-long stay, they visited Capitol Hill, the Smithsonian Institution, Mount Vernon and other national monuments, the Greek Embassy and saw a performance of "The Taming of the Shrew."

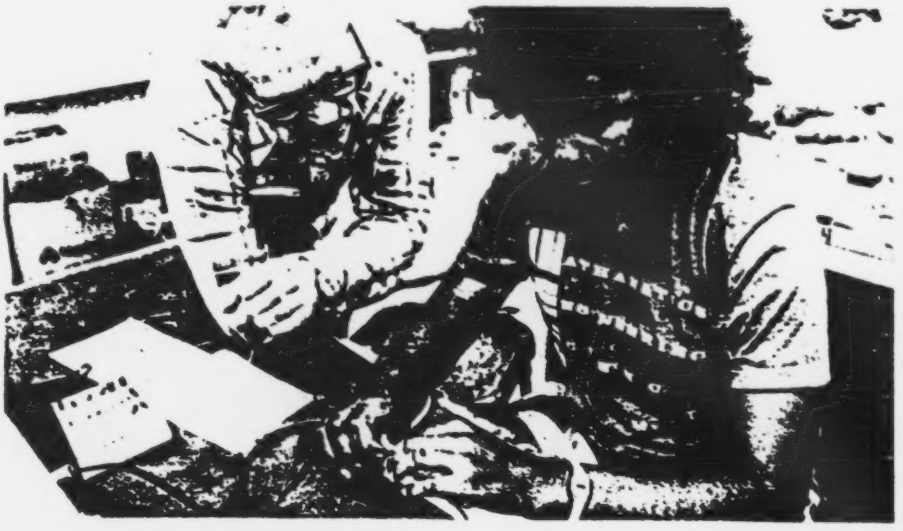
"Capitol Hill was the best part," says Joel, who adds that he wished he could have stayed for a couple more weeks.

Mountain Bell sponsored this spring's regional and state Citizen Bee competition, the first ever in Arizona.

National finalist Joel Kuester of Scottsdale's Coronado High School.

Teaching

Central Office Technician Ed Comstock of Flagstaff assists Tuanna Anderson, Glendale, as she assembles a transistor radio during the week-long Summer Technical Institute for Young Women at Northern Arizona University. The project was among the activities to expose girls to technological trades and careers in electronics, computers, design and engineering. Mountain Bell's Comstock and Don O'Dell, also of Flagstaff, were among the volunteer professionals who met with the girls to discuss job responsibilities, company operations and objectives, educational preparation, and personal and career goals. The institute was sponsored by NAU's Arizona Center for Vocational Education.



CONNECTIONS

For Equal Vocational Opportunities

Arizona Department of Education • Vocational Education • Arizona Center for Vocational Education

Spring 1986 **Jenny Erwin, Editor**

JENNY'S CORNER

What impact has the Carl Perkins Vocational Act made on equity in Arizona? Is there a visible difference in services provided, in people served, and in overall outcomes? Is the intent of this legislation being met in Arizona? Although only halfway through the first funding cycle, which began in October, the quarterly reports and on-site visits support an overwhelming positive impact in Arizona. Approximately 600 single parents and homemakers are now being served. Of those, 200 are receiving training, and 150 have been placed in jobs. Data is being collected to determine the status of participants when they enter the programs and the changes that occur during their stay in the program. A comprehensive end-of-the-year report will summarize these findings and provide a realistic picture of what did occur. Also, services have been significantly increased to school districts seeking technical assistance to reduce sex stereotyping and expand vocational options for students.

Approximately 1300 students have been involved in a variety of equity activities, and 350 teachers and counselors have, likewise, been served. Rural Arizona is getting more attention, thanks to the new regional offices in Flagstaff and Phoenix. When all the results are in, I'm confident that 1986 will be the most visible and viable year for equity in Arizona. This issue of *Connections* is dedicated to all the equity project personnel who are making this visible difference in vocational education. Jenny Erwin, Connections editor, 255-5357 or 1-800-352-4558.

RESOURCES AVAILABLE

"PUZZLES, PATTERNS, PATHWAYS," is the title for the Counselor Training Manual, plus a video, being produced by the DESC Project. It will be a valuable resource for counselor training and supervision. The focus is the special needs and concerns of single parents—including teen parents and single fathers—as well as homemakers facing a career change and displaced homemakers forced into employment. Contact us if you are interested in a workshop in the future or in receiving the completed Manual!!! Lynn O'Hern, DESC Project Manager, 621-7884.

BREAK TRADITION POSTER

This 17 x 22 black and white poster shows women and men in nontraditional vocational roles. Effective for recruiting students for vocational education. Contact Equity Office – 255-5357.

BREAK TRADITION—WHO SAYS YOU CAN'T!

Sheryl Langford, a plumber's apprentice with the Maricopa County Community College District, knows it's possible, profitable and positive to break tradition. Sheryl, who has a B.A. in secondary education, will be completing her four-year apprenticeship along with two males in October. She is the only woman to be involved in this program which began in 1980 to prepare and advance people into a craft position at the community college. Prior to becoming an apprentice, Sheryl worked in maintenance and operation, and she saw the possibility for advancement under this new program.

This apprenticeship program involves training modules, classroom instruction and field experience. Currently there are four plumbers for six sites. With the community college district expanding, there will be a need for additional crafts positions. Be assured that Sheryl will be ready and eager to be a part of the maintenance team.

Earning over $30,000 a year is only one of the many positive aspects of this training. The satisfaction of working with one's hands, seeing a problem solved and completing a project are benefits, too. Also, the 6:00 a.m. - 2:30 p.m., five-day work week allows this nontraditional role model time to pursue other interests. There is time to put in 20 hours as a counselor with the Sojourner Center, a shelter for abuse victims. There's even time to begin planning a Masters program in Public Affairs.

Sheryl, who had to prove herself to a somewhat resistant all-male work crew, now has the support and cooperation of all her colleagues. She encourages administrators, teachers, and counselors to develop policies and recruiting techniques to support the nontraditional student and employee. Her advice to students: "Don't be turned off by the stereotypes of nontraditional training and employment. Look at the benefits and keep your options open. After all, who says you can't!"

If you would like Sheryl or another nontraditional role model to visit your classroom, contact New Frontiers. Each regional office has a resource list of nontraditional models and speakers. Call Carol Ferlazzo, 523-4192 (Northern Arizona), Bev Burns, 256-3717 (Central Arizona) and Tim Wernette, 296-5451 (Southern Arizona).

COMMUNITY COLLEGES MEET EQUITY REQUIREMENTS

Thanks to the support and cooperation of Gordon Hall, State Board of Directors for Community Colleges, and to local occupational deans, Arizona's community colleges are working to meet the vocational equity requirements. To comply, the community college must provide at least *one clearly stated and measurable objective* describing how the project will promote equity through curriculum and resource materials, teaching strategies or support services. In addition, the college must describe how it will either assist single parents and homemakers with greatest financial need prepare for employment, OR provide relevant training and vocational activities to women and men to enter nontraditional occupations. Examples include:

- At Cochise College, a female lead instructor for the Computer Aided Design courses will serve as a role model to all students enrolled in the Drafting Technology Program.
- A new recruiting brochure will be designed for the Clinical Medical Assisting Program at Phoenix College and will encourage male enrollment.
- Students enrolled in sheltered workshops in Navajo County Community College District will participate in work activities based on skill and interest, and not gender.
- All materials developed or revised for the electromechanical assembly training curriculum project at the Pima Skill Center will be screened and edited for gender bias.

If LEAs had difficulty meeting the equity requirements, assistance was provided by the state equity specialist. All districts were encouraged to see how this equity component expanded opportunities for students and made their community college a viable learning center for all students!

HOW TO CLIMB A CAREER LADDER

Single parents and homemakers need to know what a career ladder is and how to climb it. A career ladder is the opportunity to move up in a job setting, receiving salary upgrades and increase in job status and responsibility. Ways to help single parents and homemakers create career ladders include:

- Emphasize the benefits of the career ladder concept at the beginning of your contact with the clients.
- Have clients investigate fully all possible career choices, using interests and skills testing.
- Set up five-year education and training plan in a particular career area.
- Provide labor market information, including wage schedule and opportunities for advancement.
- Make placements in businesses with career mobility.
- Have clients contact role models who have made advancement in a particular career area.
- Help clients identify support base for career mobility, and be there to cheer them on.

GESA TRAINING TO BE HELD IN JUNE

Gender Expectations and Student Achievement (GESA) is an exciting, powerful and effective teacher awareness and training program. Developed in California from a similar program (TESA) which focused on high/low achieving students, GESA helps classroom teachers become aware of unconscious, subtle (but very powerful) differences between how boys and girls are taught. Educational research indicates there are significant differences in teachers' interaction with females and males in the classroom, and these result in significantly different levels of academic achievement. Both males and females suffer, as do the classroom control and educational direction that teachers desire.

New Frontiers, a state-funded sex equity program, will be conducting a three-day GESA training workshop in Phoenix from June 10 to 12. Participants will receive a stipend for the training, and development and implementation of a GESA-related program in their school or district. Arizona teachers, counselors and administrative staff are invited to apply for this valuable GESA training.

For additional information, contact New Frontiers at 296-5451 (Tucson), 256-3717 (Phoenix) or 523-4192/5442 (Flagstaff).

FEMINIZATION OF POVERTY HEARINGS

The United States has experienced an alarming trend in the number of households headed by single parents, approximately 20 percent of which are headed by women. Close to one-third of these households headed by women are below the poverty level. Minority women are in an even worse situation, with 58 percent of the households headed by Black women and 60.1 percent of the households headed by Hispanic women below poverty level. It is estimated that before the year 2000—in less than 15 years—women and their children will comprise 98 percent of those living below the poverty level. Arizona reflects these national statistics. Regional hearings will help determine the extent to which poverty has become an issue in this state.

The Governor's Office of Women's Services will sponsor six hearings to investigate and record the conditions of women in Arizona. They are:

May 21 - Yuma	Sept. 30 - Tucson
June 12 - Flagstaff	Oct. 15 - Globe/Miami
Sept. 17 - Nogales	Oct. 28 - Phoenix

The hearing goals are:

A. Present information from individuals and organizations throughout the state who have expertise in dealing with the feminization of poverty.

B. Identify and seek testimony from individuals who have personal experience in this area.

C. Inform Arizona State Legislature, state agencies and department personnel, business representatives and the community at large.

D. Develop strategies to remove women and their children from poverty, and to eliminate policies and practices which perpetuate the impoverishment of women.

For more information, contact Sandra Junck, Director of Women's Services, Governor's Office, 255-1755.

SUMMER TECHNICAL INSTITUTES PROMOTE CHANGE

The imbalance of representation by sex in certain careers and study programs has created the reality of our country's new poor: The single women trying to survive in traditionally low paying occupations. Many of the factors causing this phenomenon have been created by social and cultural conditions, and innovative procedures are needed to encourage nontraditional choices by girls and young women.

To do this, girls must be reached before the 10th grade to impact class choices and encourage intellectual and emotional development needed for entrance into technical fields. During this time, any success or interest by girls in math and technical areas of study should be reinforced. Feelings of failure in these areas may result in low performance or nonparticipation.

School officials must make a concentrated effort to effect attitudinal changes toward nontraditional careers. To address those conditions affecting girls' decisions on technical careers, two week-long summer technical institutes have been planned at NAU in June for girls age 14-16.

The institutes will:

1. Encourage girls to expand their horizons and consider technical careers.
2. Provide structured activities as an introduction to technical careers and to develop confidence in personal ability.
3. Make role models available to interact with girls in training situations.
4. Support and encourage women and girls to plan nontraditional careers, especially technical careers.

The focus of the institutes will be on such technical careers as electronics, computers, design, and engineering. Business and industry have been actively involved in planning and will provide successful role models.

Careers will be explored through a variety of hands-on activities and field trips to industry sites. Career development will include self-assessment of skills, interests, values and aptitudes.

Fifty-two girls will be selected from throughout the state to attend the institutes which will run June 8-14 and June 15-21. For more information, contact Beth Packard, Arizona Center for Vocational Education, at 523-3896.

IT'S O.K. TO SAY NO WAY!

It's Okay To Say No Way! is a dynamic music video, developed by the Program Services Division, YWCA of the U.S.A., National Board, in conjunction with the YWCA Leadership Development Center in Phoenix, Arizona. It was designed and produced for a specific audience—adolescent males and females between 11 and 16. This 6½-minute video cassette tape conveys a message about teenage sexuality and responsibility to adolescents in their medium, using their language—and the words hit home.

It's Okay To Say No Way! is an excellent tool for working with teens between 11 and 16 years. The accompanying Leader's Guide provides background information, provocative questions for teens to think about, role play concepts, resources for leaders and suggestions for the video's use.

To order, send a $75 check payable to YWCA of the USA National Board, Marion Brown, Administrative Assistant, YWCA of USA, 726 Broadway, New York, NY 10003.

TRAINING IN NONTRADITIONAL OCCUPATIONS: THE NORTHERN ARIZONA EXPERIENCE

The rural areas of Arizona, where there is limited access to services, limited training opportunities, and limited job markets, present a unique challenge for training in nontraditional occupations. That challenge has been met in Northern Arizona, however, under the auspices of Vocational Equity funds. The Arizona Center for Vocational Education (ACVE), in cooperation with Northland Pioneer College (NPC), is providing training for 20 women in Building Maintenance Occupations.

In a prime example of how networking can expand resources, the training is made possible through linkages among several programs. NPC had an existing certificate program in Building Maintenance, in which they agreed to enroll a group of eligible women. Two of ACVE's programs, Training in Nontraditional Occupations and Wo/Men In Transition, worked in concert to recruit, screen, and prepare the women and to fund their training. Recruitment efforts were aided by DES Job Services and many other social service organizations to whom announcements were sent. JTPA is assisting in client support and placement.

The 23-credit-hour program of courses in Building Maintenance includes blueprint reading and the basics in carpentry, plumbing, masonry, wiring, glazing, and related topics. In addition, Wo/Men In Transition staff are providing a series of workshops on world-of-work preparation. The trainees are in class from 8:30 a.m. to 4:30 p.m. three days a week. Upon completion of the program in June, they will receive a Certificate of Applied Science in Building Occupations/Maintenance.

The 20 women who enrolled in the course range in age from 20 to 52. Half are either Native American or Hispanic. All but three of the group are single parents, and all are low-income. They travel from Flagstaff, Winslow, Holbrook, Snowflake, and Dilkon to the classes in Winslow. All are eager to take the risks necessary to attain marketable skills which will lead to good jobs and ultimately, economic independence. The support services and employment training which they are receiving will be the boost they need to pursue that goal.

For information about this program, contact Hyatt Simpson, Arizona Center for Vocational Education, Flagstaff, 523-5442.

COUNSELORS DEVELOP NONTRADITIONAL STRATEGIES

CONGRATULATIONS to the following people for being chosen to work with the DESC Project during the next six months in developing strategies for high school counselors in nontraditional career development:

Cynthia Benson	Superior H.S.
Susan Brooks	Ganado H.S.
Moses Camarena	Arizona Western College
Sheryl Coleman	Globe H.S.
Gene Dineen	Catalina H.S.
JoAnne Erickson	Clifton H.S.
Ralph Farr	Monument Valley H.S.
Dolores Merrell	Westwood H.S.
Albino Mirando	South Mountain H.S.
David Patterson	Flowing Wells H.S.
Leslie Peterson	Chandler H.S.
Mary Rogers	Metro Tech Vocational Inst.
James Sims	Flagstaff H.S.
William Timby	Patagonia H.S.
Herm Van Lunen	Thatcher H.S.

This was a difficult decision—all 25 applicants were excellent and the choices were based on having as much statewide representation as possible. Ten counties are represented, half rural and half urban schools, with an excellent ratio of minority schools. Watch for these people to be leaders in your area next year.

CALENDAR OF EVENTS

EVENT	DATE	SPONSORED BY	CONTACT	TELEPHONE
Keys to Unlocking Professional Power, II	June 12-13	Arizona AWARE	Donna Cranswick Jenny Erwin	257-2800 258-5357
Arizona FFA Leadership Conference	June 18-20	Arizona Department of Education in cooperation with The University of Arizona	Doug Daley	255-5564
United States Skill Olympics*	June 26-27	Vocational Industrial Clubs of America (VICA)	Julie Malone Greg Donovan	255-5660 255-5196
Comparative Education, Counseling and Career Development—International Study Program—Singapore/Kuala Lumpur/Bangkok/Hong Kong	July 18 - August 1	Western Illinois University	Dr. Bea Wehrly, Director	309-298-2426
August Vocational Education Conference, Phoenix Civic Center Plaza	July 30-31, August 1	Arizona Department of Education Arizona Center for Vocational Education, and DES	Kathy Dunn	523-4192
Arizona FFA Leadership Conference	August 3-8	Arizona Alumni Association	Doug Daley	255-5564

*ARIZONA HOSTS U.S. VICA SKILL OLYMPICS

For the second time in a row, Arizona plans to host the VICA United States Skill Olympics, to be held at the Phoenix Civic Center Plaza. Students from all the states will compete in Leadership, Health Care and Trade & Industry Skills Contests. In preparation, students will compete in regional and state meets. The Health section of VICA will have eight contests at the state level, including the newer areas of Dental Assisting, Medical Lab Tech and Physical Therapy.

This will be the largest convention held in Arizona for 1986, with expected attendance to exceed 6,000. The Skill Olympics will be open to the public on June 26 from 9:00 a.m. to 1:00 p.m.

SERVICES NOW AVAILABLE FROM THE SCHOOL IMPROVEMENT UNIT (SIU)

The School Improvement Unit's mission is to improve the quality of schools by providing *Staff Development Workshops.* These workshops combine theory and demonstration with hands-on simulated practice, and then follow-up with coaching in the work place. University/District credit and scheduled workshop hours are tailored to individual district's needs. Perhaps this workshop would benefit your school district: Modifying Instruction for Special Needs Students in Vocational Education Programs. A syllabus listing 66 similar workshops for teachers, counselors and administrators is available from the SIU by calling 255-3051.

Arizona Department of Education
Vocational Education—Vocational Equity
Carolyn Warner, Superintendent
John Lange, Deputy Superintendent and
State Director for Vocational Education
1535 West Jefferson Street
Phoenix, Arizona 85007

Points of view or opinion stated herein do not necessarily represent official opinion, position or policy of the Arizona Department of Education. This newsletter is made available to you through an Arizona Department of Education Project funded through Vocational Education Monies under P.L. 94-482.

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THANK YOU!

Thanks to all who returned labels with corrections following our "H-E-L-L-L-P" appeal in the Winter Edition. Please continue to assist us by passing this issue to the correct person, and returning our mailing label showing replacements, deletes and spelling corrections. Florence Naumoff, Editorial Associate.

MS BETH BACKARD
NAU AZ CENTER FOR VOC ED
CU BOX 6025
FLAGSTAFF AZ 86011

046
051
50

SUMMER TECHNICAL INSTITUTES FOR YOUNG WOMEN

ARIZONA CENTER FOR VOCATIONAL EDUCATION

DETAILS

WHO: Interested young women, ages 14-16 with skills in science & math. Instructors from business/industry & education will provide learning experiences. The ratio of counselors to students is 1:13.

WHEN: June 8-14, or June 15-21, 1986

WHERE: Northern Arizona University Flagstaff, Arizona

WHY: To have fun while exploring careers in technology.

HOW: To be one of the fifty-two selected, complete the application on the back. Write a letter telling why you are interested and enclose a letter of nomination from a teacher or a counselor.

COST: The fee is $150.00, including room and board. Scholarships are available based upon financial need. A complete schedule of activities is planned daily.

TECHNICAL FIELDS,
ELECTRONICS,
ENGINEERING,
+
TRAINING
=
$$$

LEARNING ACTIVITIES

Learn.....jobs available to you

Tour.....business and industry

Participate .....In lab projects

Explore.....computers, math and science

For more information contact:

Beth Packard, Project Director
Arizona Center for Vocational Education
Box 6025, Flagstaff, AZ 86011
(602) 523-5442/3896

NAU is an equal opportunity employer

SUMMER TECHNICAL INSTITUTE APPLICATION

NAME: _____
LAST FIRST MIDDLE

SCHOOL: _____ AGE: _____ GRADE: _____

TELEPHONE: _____ I WOULD LIKE TO APPLY FOR A SCHOLARSHIP: _____

I HAVE COMPLETED ALGEBRA I (BY JUNE 86): YES____ NO____

I WOULD LIKE TO ATTEND SESSION I - JUNE 8-14: ____ SESSION II - JUNE 15-21: ___

I UNDERSTAND THAT MY ACCEPTANCE IS AN AGREEMENT TO ATTEND THE ENTIRE WORKSHOP:

STUDENT'S SIGNATURE _____ PARENT'S SIGNATURE: _____

**FEES ARE PAYABLE UPON ACCEPTANCE.
**ENCLOSE LETTERS OF INTEREST AND TEACHER/COUNSELOR NOMINATION.

RETURN ADDRESS:
BETH PACKARD
NAU Box 6025
FLAGSTAFF, AZ 86011

TWO ONE - WEEK SUMMER INSTITUTES

JUNE 8 - 14, 1986

OR

JUNE 15 - 21, 1986

Administered by: The Arizona Center for Vocational Education a part of the Center for Excellence in Education at NAU.

Funded by: The Arizona Department of Education

ARIZONA CENTER FOR VOCATIONAL EDUCATION
NAU BOX 6025
FLAGSTAFF, AZ 86011

YOUNG WOMEN'S SUMMER TECHNICAL INSTITUTE

EXPLORE TECHNOLOGY

- *FIELD TRIPS*
- *A CAMPUS ENVIRONMENT*
- *DEMONSTRATIONS & PRESENTATIONS*
- *HANDS-ON LABORATORY EXPERIENCES*

NORTHERN ARIZONA UNIVERSITY
University News and Publications
Box 4101
Flagstaff, AZ 86011
602:523-2282

NEWS

CONTACT: Peggy Pavlich

LOCAL PROFESSIONALS SHARE EXPERTISE TO GUIDE GIRLS TOWARD TECHNICAL CAREERS

FLAGSTAFF--Several representatives from local offices of state, regional and national organizations are participating in the Summer Technical Institute for Young Women at Northern Arizona University.

Girls, ages 14-16, from throughout Arizona attend one of two week-long sessions, June 8-14 and 15-21, where they meet women and men professionals working in technical fields.

The institute is designed to motivate girls to pursue careers in electronics, computers, design, engineering and other fields which typically pay more than occupations traditionally held by women.

The program, involving 51 girls of various ethnic backgrounds, is sponsored by the Arizona Center for Vocational Education, a division of the Center for Excellence in Education.

Participating organizations represented locally include: Mountain Bell, W.L. Gore and Associates, Mack Corp., Comtec Economation Inc.; City of Flagstaff; U.S. National Park Service; U.S. Geological Survey; and NAU's College of Engineering and Technology and School of Health Professions.

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6/13/86

NORTHERN ARIZONA UNIVERSITY
University News and Publications
Box 4101
Flagstaff, AZ 86011
602:523-2282

NEWS

CUTLINE

CONTACT: Peggy Pavlich

**PROFESSIONALS SHARE EXPERTISE
TO GUIDE GIRLS TOWARD TECHNICAL CAREERS**

Hughes Aircraft Co. employee Charlene Nanos, manufacturing engineer, recently made a presentation to the Summer Technical Institute for Young Women at Northern Arizona University. The week-long institute is designed to motivate girls to pursue careers in electronics, computers, design, engineering and other fields which typically pay more than occupations traditionally held by women. Nanos, an NAU graduate in computer science, was among some 70 professionals who met with girls, ages 14-16, to discuss job responsibilities, company operations and objectives, educational preparation, personal and career goals. The program, iuvolving 51 girls of various economic and ethnic backgrounds from throughout Arizona, is sponsored by the Arizona Center for Vocational Education, a division of the Center for Excellence in Education at NAU.

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6/25/86

NORTHERN ARIZONA UNIVERSITY
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Box 4101
Flagstaff, AZ 86011
602:523-2282

NEWS

CUTLINE

CONTACT: Peggy Pavlich

**PROFESSIONALS SHARE EXPERTISE
TO GUIDE GIRLS TOWARD TECHNICAL CAREERS**

Garrett AIResearch employees Heather Jungeman (photo 1), test engineer, and Debra Pye (photo 2), systems engineer-software, recently made presentations to the Summer Technical Institute for Young Women at Northern Arizona University. The week-long institute is designed to motivate girls to pursue careers in electronics, computers, design, engineering and other fields which typically pay more than occupations traditionally held by women. Jungeman and Pye were among some 70 professionals who met with girls, ages 14-16, to discuss job responsibilities, company operations and objectives, educational preparation, personal and career goals. The program, involving 51 girls of various economic and ethnic backgrounds from throughout Arizona, is sponsored by the Arizona Center for Vocational Education, a division of the Center for Excellence in Education at NAU.

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6/25/86

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NEWS

CUTLINE

CONTACT: Peggy Pavlich

**PROFESSIONALS SHARE EXPERTISE
TO GUIDE GIRLS TOWARD TECHNICAL CAREERS**

Motorola employees Terri Jo Carroll (photo 1, standing, left), chemical engineer, Marie Diaz (looking on, second left), electrical engineer, Karen Williams (photo 2, left), device engineer, and Stacy Gilmore (gesturing), quality engineer, recently made presentations to the Summer Technical Institute for Young Women at Northern Arizona University. The week-long institute is designed to motivate girls to pursue careers in electronics, computers, design, engineering and other fields which typically pay more than occupations traditionally held by women. Carrol, Diaz, Williams and Gilmore were among some 70 professionals who met with girls, ages 14-16, to discuss job responsibilities, company operations and objectives, educational preparation, personal and career goals. The program, involving 51 girls of various economic and ethnic backgrounds from throughout Arizona, is sponsored by the Arizona Center for Vocational Education, a division of the Center for Excellence in Education at NAU.

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6/25/86

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NEWS

CUTLINE

CONTACT: Peggy Pavlich

**PROFESSIONALS SHARE EXPERTISE
TO GUIDE GIRLS TOWARD TECHNICAL CAREERS**

Sperry Corp. employees Carie Stevens (left) and Chris Ross (right), both software engineers in the Flight Control Area-Commercial Division, recently made a presentation to the Summer Technical Institute for Young Women at Northern Arizona University. The week-long institute is designed to motivate girls to pursue careers in electronics, computers, design, engineering and other fields which typically pay more than occupations traditionally held by women. Stevens and Ross were among some 70 professionals who met with girls, ages 14-16, to discuss job responsibilities, company operations and objectives, educational preparation, personal and career goals. The program, involving 51 girls of various economic and ethnic backgrounds from throughout Arizona, is sponsored by the Arizona Center for Vocational Education, a division of the Center for Excellence in Education at NAU.

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6/25/86

APPENDIX B

Linkages

M E M O R A N D U M

TO: Bobbi Stalnaker, Kenny Ralston, and Annette Switzer of
W.L. Gore and Associates
Rea Harvey and Chris Wannie, Flagstaff Public Schools
Neal Farmer, Colorado River Electric
Teresa Stremel, Mechanical Engineering, NAU
Pat Nava Orsorno, College of Engineering, NAU
Vicki France, City of Flagstaff, Engineering Division
Kris Dellinger, City of Flagstaff, Engineering Division
Christine Nelson, Engineer, Packard Electric
Micheal Stowe, Upward Bound, NAU
Paul Dale, Career Development, NAU

FROM: Beth Packard, Coordinator of Special Projects, ACVE

DATE: December 5, 1985

RE: Summer Technical Institute

Thank you for agreeing to assist in an advisory capacity with the Summer Technical Institute for girls. W.L. Gore and Associates, has agreed to host the first meeting at 1500 N. 4th Street, in the east front conference room of the East Building. The meeting is scheduled for December 18, at 4:15 and should be concluded no later than 5:30.

After explanation of the need for a girls' institute in nontraditional occupations the following will be discussed:

1. What kind of schedule and activities should be planned to keep the girls occupied?

2. What should be the course outcomes for the week?

3. What learning aids and materials will be necessary?

4. How best should the workshop be marketed?

5. What are your suggestions for obtaining sponsors to pay for the girls to come to the institute?

I appreciate the enthusiasm expressed by each of you for this project and your willingness to lend expertise. Please call me with regrets at 523-4192.

Technical Training Institute

Advisory Committee Meeting Notes - W.L. Gore, Dec. 18, 1985

Those in Attendance: Bobbi Stalnaker, Ken Ralston, Annette Switzer, Rea Harvey, Chris Wannie, Teresa Stremel, Pat Nava Orsorno, Vicky France, Kris Dellinger, Christine Nelson, Micheal Stowe, Paul Dale.

Introductions, the purpose of the Technical Training Institute, and discussion of the packet (test A handouts) were items addressed by Beth Packard in opening the meeting.

1. Students should be nominated by a school counselor.
2. Interest and aptitude should be a criteria for screening attendees.
3. The student should be required to submit a letter of interest and a letter of reference from an instructor or administrator.
4. The committee should work directly with school counselors.
5. Social problems and barriers should be addressed such as segregation and integration of Native American students from the reservation.
6. Students might be randomly selected if they qualify.
7. Confidence should be developed to cause math success and reduce fear of failure. Motivation might be increased through self awareness techniques and hands-on activities. Pressuring girls into technical areas of study will not work.
8. The girls should be educated on differences between technician positions and engineering careers.
9. Do not necessarily stress college, but include information about technical institutes such as DeVry.

Two groups were formed to develop goals and objectives in each area and to develop a working plan. The following two committees were formed at the conclusion of the meeting:

Career Development Committee: Vicky, Christine, Micheal, Paul and Bobbi (Chair).

Technical Committee: Ken (Chair), Chris, Teresa, Rae, Anita, and Pat.

The next meeting of the TTI Advisory Committee will be held at NAU on January 27 (Monday) at 4:15 p.m.

The Technical Committee will meet at Gore, Jan 21, 4:00 p.m.

The Career Development Committee will meet Jan. 9 at 4:00 p.m. at Gore.

January 14, 1986

Career Committee Meeting Minutes--January 9 at Gore

The Career Subcommittee decided that the main goal of this committee was to motivate girls to select nontraditional careers. To achieve this goal, the following outcomes for the week have been developed for presentation to the committee of the whole:

1. A self-assessment will be completed which will include evaluation of values, interests and skills (these will be related to job descriptions, job conditions, educational requirements, salaries, and so forth).

2. Knowledge of the variety of technical job types possible will be demonstrated by the participants.

3. The girls will complete specific technical projects during the week, each of which are intended as an introduction to technical careers and to develop confidence in personal ability.

4. The girls will be exposed to a variety of career role models, including peer role models, as a means of learning about sex stereotyping and how to overcome these barriers.

5. Each girl will demonstrate knowledge of the support systems and encouragement required for one to enter and successfully achieve in nontraditional roles.

6. Each participant will demonstrate an appreciation of the importance of math and/or science to technical careers.

It was agreed that for each of the outcomes, a measurable means of evaluating success of the week's presentations should be devised. The "flower" concept was suggested as one way to evaluate learning. This concept will be explained in detail (by Paul Dale) at the next meeting of the Career Subcommittee.

Other suggestions of this subcommittee were that a variety of role models be presented at the institutes who could represent different lifestyles e.g. divorced, single head of household, etc. The importance of technician level jobs should be stressed as well as those of a professional nature. Avocations, it was felt should be contrasted to vocations.

The meeting of the total Summer Technical Institute was announced for January 27, at MAU. It will begin at 4:15 p.m. A meeting date of this subcommittee will be set at that time.

ARIZONA CENTER FOR VOCATIONAL EDUCATION
Box 6025
Flagstaff, Arizona 86011
(602) 523-4192; 523-5442

Administered by Northern Arizona University

January 16, 1986

Dear President of Soroptomist International:

The Arizona Center for Vocational Education at Northern Arizona University is offering two one-week Summer Technical Institutes for junior high and high school girls. These institutes will be offered in Flagstaff beginning June 8th. I am writing to you as a fellow Soroptomist, to ask for club sponsorship in the form of tuition for one or two girls from your community.

As you may be aware, 50% of the workforce are women, yet nearly 70% of these women are concentrated in three occupational groups, most of which are traditionally low paying. Because of the pay differential created by those jobs considered to be "female", women will need seventeen years of schooling to equal the salary of a man with an eighth grade education. One way of providing women professional and financial resources to be competitive, is by encouraging their participation in nontraditional occupations.

The technical institutes, in a pilot phase this year, are being designed to introduce occupations deemed to be in high demand as indicated by labor statistics. Focus will therefore be on technical careers, such as those in electronics, computers, design, or engineering. Business and industry are actively involved in planning and will be providing personnel as successful role models.

To sponsor a girl, your club may use one of the following procedures: 1) work cooperatively with the schools in your area to nominate a girl(s) who demonstrate both interest and aptitude for technical careers and then submit the name(s) for review by the screening committee; or 2) indicate, by letter, your willingness to sponsor a girl selected by the screening committee (you may indicate preference in support of someone from your community).

Tuition costs are not covered by the funding source. To ensure that all qualified, worthly students may participate, support in the form of room, board, and incidental costs are being requested. Tuition per girl has been set at $125.00 for the entire week of instruction.

Please call me at 523-4192 if you have need of further information or supporting data. In advance, may I extend my thanks for your time and consideration of this request.

Sincerely,

Beth Packard

Beth Packard
Project Director
Summer Technical Institute

Scholarships
for
Summer Technical Institute

San Carlos Tribe - JTPA Program
P.O. Box 0
San Carlos, AZ 85550

Laura Nosie
Darlene Bendle -$300.00

Malapais Kiwanis

Flagstaff, AZ 774-3345

Aurealia Dalgai -$75.00
Danette Reed -$75.00

Pres. Mark McCullough P.O. Box 1000, 86002

Soroptimist of Phoenix
P.O. Box 1905
Phoenix,AZ 85001

Nakele Obleton -$150.00

Elks Club and Yuma Teachers Association

Yuma, AZ

Ana Cortez -$190.00

Soroptomist of Phoenix
P.O. Box 1905
Phoenix, AZ 85001

Denise Rocha -$100.00

Arizona Bordertown
Indian Ed. Commission
15 East Cherry Avenue
P.O. Box 1575
Flagstaff, AZ 86002

Danette Reed -$75.00

Winslow Public Schools
P.O. Box 580
Winslow, AZ 86047

Amber Merit -$150.00

Delta Sigma Theta Sorority, Inc.
Pres. Marilyn Sanders
4515 W. Kristal Way
Glendale, AZ 85308

Veronica Acosta -$150.00

Agua Fria Union High School
Student Activity Fund
Avondale,AZ 85323

Cheryl Sutton -$150.00

Show1ow Schools
RR2 Box 8870
Show1ow, AZ 85901

Robin Lewis -$50.00
Lynna Griffin -$50.00

Soroptomist of Winslow
P.O. Box 547
Winslow, AZ 86047

Shannon Macedo
Lynne Baca -$300.00

Soroptomist of Zane Grey Country
P.O. Box 1554
Payson, AZ 85547

Niki Hale
Monja Mallow -$300.00

Red Mesa School
Star Rt. 1, Box 40
Teec Nos Pos, AZ

$150.00 Each = 600.00

Sharon Celestine Brenda Allen
Vicky Yazzie Wendy Benally

Mexican Amercian Cood. Council
P.O. Box 1801
Flagstaff, AZ 86001

From: Tom Hernandez
5600 N. Dakota Sp. 37

Melissa Bojorquez -$150.00

East Flagstaff Soroptimist
P.O. Box 3241
Flagstaff, AZ 86003

Rena Mae Scott $125.00
Romaine Heap, Treasurer

Flagstaff Soroptimist

Flagstaff, AZ

Kari Rutter -$125.00

Williams Public Schools
Williams, AZ 86046

From: Mr.Englert
P.O. Box 216

Melanie Mowrer
Priscilla Montoya -$450.00
Sabrina Harbour

Speakers - Week 1 June 9-13

Date: Monday, June 9, 1986
Subject:
Name: Charlene Manos
Degree: Computer Science
Position:
Address: Hughes Aircraft Co.
P. O. Box 11337
BLDG 801, Col. 0-17
Tucson, AZ 85734
Phone: (home) 774- 347
moving, so phone will change

Date: Tuesday, June 10, 1986
Subject: Micro Softwear Application
Name: Chris Ross
Degree: Computer Science
Position: 18223 N. 33rd Dr. Phx 85023(Hm)
Address: Sperry Corp.
P. O. Box 2111
Phoenix, AZ 85036
Phone: 869-1291 (work)

Date: Wednesday, June 11, 1986
Subject: W. L. Gore
Name: Ken Ralston and Anita Switzer
Degree: 11:30 - 12:30
Position:
Address: W. L. Gore
P. O. Box 800
Flagstaff, AZ 86002
Phone: 526-3030

Date: Thursday, June 12, 1986
Subject: Clean Room/Semi Conductor Lab
Name: Rick Barlett and Mike Marchette
Degree: 779-2012
Position:
Address: 219 W. Oak Ave., Apt. #103
Flagstaff, AZ 86001

Phone: 774-3155

Date: Friday, June 13, 1986
Subject: Testing
Name: Heather Jungeman
Degree: B.S., Elect.
Position:
Address: Garrett Research
2701 E. Elvira Rd.
Dept. 75900
Tucson, AZ 85706
Phone: 573-6487 (work)

Week II - June 16-20

Name: Lane Yow
Degree: B. S.,Chem. Eng.
Position:
Address: Hughes Aircraft
(home) 5915 Academy St.
MBU #97
Tucson, AZ 85708
Phone: (work) 295-7384

Date: Tuesday, June 17, 1986
Subject: Chemistry-Karen Williams
Name: Karen Williams/Stacy Gilmore
Degree: Device Eng./Quality Eng.
Position:
Address: Motorola Inc.
2200 W. Broadway
Mail Drop M-700/420 (SG)
Phone: Mesa, AZ 85202 Ph.962-3529/2702 (SG)

Date: Wednesday, June 18, 1986
Subject: W. L. Gore
Name: Ken Ralston and Anita Switzer
Degree: 11:30 - 12:30
Position:
Address: W. L. Gore
P. O. Box 800
Flagstaff, AZ 86002
Phone: 526-3030

Date: Thursday, June 19, 1986
Subject:
Name: Vicki France & Pat Nava Osorno
Degree: 11:30-12:30 1:00-2:00
Position: Barry Fackler - P.Therapy 2:00 - 3:00
Address: City of Flagstaff, Eng. College of Eng.
211 W. Aspen NAU Box 15600
Flagstaff, AZ 86001 Flagstaff, AZ 8601
Phone: 774-5281 523-5842

Date: Friday, June 20, 1986
Subject: Systems
Name: Debra Pye
Degree:
Position:
Address: Garrett Air Research
2701 E. Elvira Rd.
Dept. 93-977
Tucson, AZ 85706
Phone: 573-6279

ADDRESSES

ADVISORY COMMITTEE

SUMMER TECHNICAL TRAINING INSTITUTE

CAREER DEVELOPMENT COMMITTEE

PAUL DALE
CAREER DEVELOPMENT, NAU
BOX 4097
523-4868

VICKI FRANCE
CITY OF FLAGSTAFF, ENGINEERING
211 W. ASPEN, FLAGSTAFF
774-5281

CHRISTINE NELSON
137 NAKAI TRAIL
FLAGSTAFF
525-1328

BOBBI STALNAKER (CHAIR)
W.L. GORE AND ASSOCIATES
PO BOX 800, FLAGSTAFF, AZ
526-3030 86002

MICHEAL STOWE
UPWARD BOUND, NAU
BOX 6035
FLAGSTAFF, AZ 86011
523-2761

KRIS DELLINGER
CITY OF FLAGSTAFF, ENGINEERING
211 W. ASPEN, FLAGSTAFF 86001
774-5281

TECHNICAL COMMITTEE

RAE HARVEY
FLAGSTAFF PUBLIC SCHOOLS
701 N. KENDRICK STREET
FLAGSTAFF, AZ 86001
779-6403

PAT NAVA ORSORNO
COLLEGE OF ENGINEERING, NAU
BOX 15600, FLAGSTAFF, AZ 86011
523-5251

KEN RALSTON (CHAIR)
ANNETTE SWITZER
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PO BOX 800, FLAGSTAFF 86002
526-3030

TERESA STREMEL
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BOX 15600, FLAGSTAFF 86011
523-5251

CHRIS WANNIE, VOC ED
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701 N. KENDRICK STREET
FLAGSTAFF, AZ 86001
779-6403

CHRISTINE NELSON
137 NAKAI TRAIL
FLAGSTAFF, AZ 86001
525-1328

STUDENT COUNSELORS

NATALIE NARLAND
BEFORE 5 - 523-4681
AFTER 5 - 523-4539

CHRISTY KRONE
523-5584

June Monthly Report
Submitted to Don Parsons
By Beth Packard

SUMMER TECHNICAL INSTITUTE

The majority of my time was spent coordinating activities in preparation and execution of two weeks of the Summer Technical Institutes.

The impact data assembled thus far is as follows:

Students ----------51
Parents & grandparents --------102
Business/Industry/Agency -------73

This information does not include the numbers of teachers/counselors/administrators contacted or the numbers of community members contacted about funding for scholarships or JTPA slots for students. This information will be compiled and reported in July.

A breakdown of the kinds of direct volunteer services provided to this project during the two weeks of the institutes by individuals, corporations, and university personnel is detailed below:

Service: Computer Laboratory Facilities
Provider: College of Business, donated 10 days for 1 1/2 days per week.

Service: Counselor Training
Provider: Upward Bound, provided our counselors with opportunity to train for three days through their program.

Service: Savings on Food Service
Provider: Professional Food Management, provided sack lunches and barbecues at meal ticket prices, at a great savings to the project.

Service: Conference Fee Waiver
Provider: Student Activities, provided a waiver of the conference fee, at a savings of $50 per institute participant.

Service: Volunteer Instruction for Radio Assembly
Provider: 2 Mountain Bell employees, 4 days, 1 1/2 hours per day
1 retired Hughes Aircraft engineer, 7 days, 1 1/2 hours per day

1 high school student, 4 days, 1 1/2 hours per day
1 high school instructor, 5 days, 1 1/2 hours per day

Service: Presentations by Business/Industry/Agencies
Provider: Motorola, 4 female engineers traveled at company expense from Phoenix.

Sperry, 2 female technicians traveled at their own expense from Phoenix, one traveled as a business day, but the other took a vacation day to come.

Hughes, 2 female engineers traveled at their own expense from Tucson.

Garrett AiResearch, 2 female engineers traveled at corporate expense from Tucson.

W.L. Gore, 4 persons, involved in various aspects of the company, volunteered a total of fourteen hours of time to the project during the institutes and many other hours attending advisory committee meetings.

U.S. Geological Survey, 9 individuals participated in separate presentations during two, one-hour presentations.

Pepsi-Cola Bottling Company, 2 persons gave tours each week of the institutes.

Comtec Economation, 2 persons gave tours, each week of the institute.

City of Flagstaff, 4 government technicians presented in a panel format, a tour was given of the water treatment plant.

Sunset Crater, 1 US Forest Service employee and 2 seismologists gave presentations.

Williams High School, 3 students donated 5 hours of travel and display time to the project (computerized robot).

Mack Corporation, 2 individuals gave tours and/or presentations to the group.

Service: Guided Walks
Provider: U.S. Forest Service, 2 female foresters guided two 2 1/2 mile walks around Mt. Elden.

Service: Presentations by University Officials

Provider: Engineering College, 5 individuals presented in a carousel fashion.

Physical Therapy, 1 individual gave a demonstration and a presentation.

Career Development Office, 1 individual gave 2 presentations. In addition, the institute had free use of all facilities, equipment and career materials in this office for two evenings.

Other: Eight ACVE employees assisted the project by providing free services such as doing caligraphy for the certificates, taking photographs and videos, providing housing for industry speakers, doing presentations, setting up the GIS, and acting as a life guard to meet requirements of the Natatorium.

APPENDIX C

Participant List
and
Summary Evaluations

PARTICIPANT LIST

EQUITY ACTIVITY Summer Technical Institute DATE June 8-21, 86 PLACE NAU

PLEASE PRINT

	YOUR NAME	POSITION	SCHOOL ADDRESS	TELEPHONE NO.
Session	Veronica Acosta	Student - North HS	6000 S. 6th Street, Phoenix	243-4800
I	Angela Talarico	Student - Agua Fria HS	530 E. Riley, Avondale	932-4250
	Nilda Velez	Student - Moon Valley	3625 W. Cactus Rd., Phoenix	588-4100
	Cheryl Casone	Student - Thunderbird	1750 W. Thunderbird, Phoenix	866-6100
	Denise Rocha	Student - Sunland	6000 S. 7th Street, Phoenix	243-4800
	Kari Rutter	Student - Flagstaff HS	400 W. Elm St., Flagstaff	779-6430
	Danette Reed	Student - Flagstaff HS	400 W. Elm St., Flagstaff	779-6430
	Heather McLaughlin	Student - Coconino HS	701 N. Kendrick, Flagstaff	779-6415
	Maria Contreras	Student - Cottonwood	P.O. Box 57, Cottonwood	634-2231
	Shelly Stafford	Student - Showlow JHS	500 W. Old Linden Rd, Showlow	537-5140
	Coralie Kruger	Student - Mingus HS	P.O. Box 248, Cottonwood	634-7531
	Aurealia Dalgai	Student - Flagstaff JH	3223 N. 4th Street, Flagstaff	779-6425
	Amber Meritt	Student - Winslow HS	800 Apache, Winslow	289-3347
	Monja Mallow	Student - Payson JHS	P.O. Box 919, Payson	474-2233
	Niki Hale	Student - Payson HS	P.O. Box 919, Payson	474-2233
	Twanna Anderson	Student - Deer Valley	51st Ave & Union Hills, PHX	866-5857
	Cheryl Sutton	Student - Agua Fria HS	530 E. Riley Drive, Avondale	935-3896
	Laura Nosie	Student - E. AZ College	626 Church St., Thatcher	428-1133
	Darlene Bendle	Student - E. AZ College	626 Church St., Thatcher	428-1133
	Wendy Benally	Student - Red Mesa HS	Star Rt. 1, Box 40, Teec Nos Pos	656-3226
	Brenda Allen	Student - Red Mesa HS	Star Rt. 1, Box 40, Teec Nos Pos	656-3226
	Pamela Cullison	Student - Thunderbird	1850 W. Thunderbird, Phoenix	866-6100
	Vicky Yazzie	Student - Red Mesa HS	Star Rt. 1, Box 40, Teec Nos Pos	656-3226
	Melanie Mowrer	Student - Williams HS	440 S. 7th, Williams	635-4474
	Christine Andre	Student - Desert Sky J	5130 W. Grovers Ave., Glendale	866-5600
ession	Ana Cortez	Student - 4th Ave JHS	450 6th St., Yuma	783-2193
II	Robin Lewis	Student - Showlow JHS	500 W. Linden, Showlow	537-5140
	Allison Taylor	Student - Gilbert HS	P.O. Box V, Gilbert	683-2286
	Lynna Griffin	Student - Showlow JHS	500 W. Linden, Showlow	537-5140
	Janice Moe	Student - Buckeye HS	902 Eason Ave., Buckeye	935-3200
	Priscilla Montoya	Student - Williams HS	440 S. 7th, Williams	635-4474
	Sabrina Harbour	Student - Williams HS	440 S. 7th, Williams	635-4474
	Carrie Fischbach	Student - Kofa HS	3100 Ave A, Yuma	726-5750
	Lisa Bastian	Student - Horizon HS	5601 E. Greenway, Scottsdale	953-4104
	Jerrilene Antone	Student - Kayenta MS	P.O. Box 337, Kayenta	697-3251
	Lynne Baca	Student - Winslow HS	800 Apache, Winslow	289-3347
	Shannon Macedo	Student - Winslow JHS	P.O. Box 580, Winslow	289-3347
	Christine Loch	Student - Buckeye HS	902 Eason Ave., Buckeye	386-4423
	Jenny Gaudet	Student - Shadow MT.	2902 E. Shea blvd. Phoenix	867-5326
	Cecilia Flamme	Student - Coconino HS	2801 N. Isabel, Flagstaff	779-6415
	Angela McBride	Student - Copperwood	11232 N. 65th Ave. Glendale	878-1016
	Davona Bonner	Student - Fremont JHS	1001 N. Bush Hwy. Mesa	981-1462
	Rena Mae Scott	Student - Red Mesa HS	Star Rt 1, Box 40, Teec Nos Pos	656-3429
	Sharon Celestine	Student - Red Mesa HS	Star Rt q, Box 40, Teec Nos Pos	656-3429
	Vanessa Price	Student - E. Flag. JHS	701 N. Kendrick, Flagstaff	779-6415
	Nakele Obleton	Student - McClintock	1830 E. Del Rio Dr. Tempe	839-4222
	Jennifer Laman	Student - Globe JHS	501 Ash Street, Globe	425-3211
	Kelly Davenport	Student - Globe JHS	501 Ash Street, Globe	425-3211
	Julie Ledezma	Student - Gadsden Elem.	P.O. Box 128, Gadsden	627-2239
	Susana Carrera	Student - Gadsden Elm.	P.O. Box 128, Gadsden	627-2239
	Melissa Bojorquez	Student - E. Flag JHS	701 N. Kendrick, Flagstaff	779-6415

SUMMER TECHNICAL INSTITUTE FOLLOW-UP QUESTIONNAIRE

1. Now that you are back home, what are the key ideas or thoughts gained from all of the activities of your week here at the Institute?

2. What changes have you made or do you intend to make as a result of what you learned? (For example, did you or will you be taking different courses at school?)

3. Do you look at yourself and your possibilities in the same way as you did before the Institute? Explain your answer.

4. If we held the Institute for an advanced level, would you like to attend? Why?

5. Now that you are back in your own environment, what roadblocks are you facing as you think about your future career plans?

PLEASE PRINT YOUR NAME HERE:_____

SEPTEMBER

SUMMER TECHNICAL INSTITUTE
Evaluations from Open Ended Survey

KEY IDEAS	FREQUENCY	% OF RESPONSE
Opened minds or solidified ideas of career options	6	30%
Came out with an "I can" attitude	3	15%
Provided an introduction to college life	3	15%
Other: "need for more math", "girls can do as well as boys", "need to keep up studies", "need for self-sufficiency"	6	30%
Girls can enter nontraditional careers and should not be intimidated not to do so	2	10%
Total Number of Responses	20	100%

CHANGES IN BEHAVIOR		
Modified course taking; more math, science, computer and electronics	13	76%
Thinking about taking harder courses	1	6%
Learned not to be intimidated by competition with males	1	6%
Stopped saying "I can't"	1	6%
No behavior changes	1	6%
Total Number of Responses	17	100%

CHANGES IN SELF-PERCEPTION

Views self as possessing wide abilities and possibilities	6	33%
Possesses "I can" attitude, more confident, secure, not a quitter	10	56%
Must work harder to achieve goals	2	11%
Total Number of Responses	18	100%

WHY WOULD YOU ATTEND AGAIN?

To gain information and knowledge	9	41%
Fun	4	18%
Broader exposure to careers	3	14%
Build self-confidence	2	9%
Other	4	18%
Total Number of Responses	22	100%

ROAD BLOCKS

Limited course offerings at school	3	19%
Fear of entering male dominated courses of study	3	19%
Insufficient financial base	2	13%
Fear for not making the grade or other fear	4	25%
None noted	4	25%
Total Number of Responses	16	100%

* A second follow-up will be mailed in November.

June 21, 1986

COMMENTS OF YOUNG WOMEN IN RESPONSE TO "WHAT DID YOU LEARN THIS WEEK AT THE INSTITUTE?"

- How to live with a woman who snores.

- Computers and soldering, and I enjoyed the week.

- I learned what field to go into after high school or college and that I can do what I want--and that's engineering.

- How to feel confident in myself, and that I can do anything I want.

- No matter who you are you can do anything you want--no matter what kind of background you come from.

- What career I want to do.

- How it is to be on my own like in college.

- How to solder--I didn't even know what it was.

- How to get up at 5 a.m.

- A lot about computers.

- I learned to put a high price on my values.

- That a woman can do anything she wants--and it's not just a man's field.

- To live with Priscilla.

- Many fields of engineering, lots more than I thought.

- How to deal with Nikalae.

- How to eat ice cream.

- Don't drink 8 root beers in one night.

- Different technical careers open to women.

- The week was fun and exciting.

- I learned to be friends with people I never thought I'd be friends with --because of ethnic things -- and that people are people.

- How to short sheet a bed

- How to like cafeteria food.

- How to talk Spanish.

Counselor's comment: Be aware that there will always be those not as good as you and those better than you, and that should give you lots of power. So just go for it!

SUMMER TECHNICAL

INSTITUTE

HANDBOOK

June 15 - 21

Northern Arizona University
Flagstaff

Sponsored by: Arizona Center for Vocational Education &
Northern Arizona University

welcome

TO THE SUMMER TECHNICAL INSTITUTE !!

Your week be filled with fun and exciting recreational activities. In addition to planned computer labs and technical projects, you will have the opportunity to experience this unique "Mountain Campus" by participating in the following activities:

- Field trips to area businesses
- Hikes in the woods
- Barbeques
- Picnics
- Friday night movies (cost twenty-five cents)
- Ping pong
- Tennis
- Swimming
- Two TV rooms with VCR's
- Simple cooking in the kitchen areas

WHAT TO BRING

We will provide you with bed linen; a meal ticket; accident insurance; and academic supplies.

Below is a list of items you need to bring with you on Sunday:

A. Clothing
   1. Casual summer wear; enough change of clothes to last one week
   2. One change of dress clothes (Sunday evening is the only night you will need to "dress up")
   3. P.E. clothes; shorts, tops, and tennis shoes
   4. Shoes or boots
   5. Pajamas/bathrobe (something to sleep in)
   6. Jacket, sweatshirt, slacks (for Flagstaff's cool evenings)

B. Toilet Articles
   1. Toothbrush/toothpaste
   2. Bath soap, shampoo
   3. Towels
   4. Anything else you might need

C. Bedding
   1. Blankets
   2. Pillow

D. Optional Items
   1. Clock
   2. Throw Rug
   3. Clothes hangers
   4. If you wear eye glasses, bring an extra pair if you have one, in case you break or lose one pair.

DORM LIFE

When you check in on Sunday come to the front desk of Tinsley. A counselor will be there to help you or one will be paged.

The front desk at the dorm is open the following times:

Monday - Friday	7:00 AM - 10:45 PM
Saturday - Sunday	8:30 AM - 10:45 PM

The desk offers services such as sports equipment, first aid supplies, and a smiling face to help make your experience enjoyable.

In case of emergency go immediately to your NAU counselor, she will assist you.

LAUNDRY AND CUSTODIAL SERVICES
HOW TO KEEP EVERYTHING SPARKLING CLEAN

LAUNDRY FACILITIES -- Tinsley Hall has a laundry room with washers and dryers. The washers are fifty cents and the dryers are twenty-five cents for approximately 30 minutes.

CUSTODIAL SERVICES -- are provided for the bathrooms and public areas (lounges and halls). In your new "home away from home", it's up to you to keep your own room tidy! You can use mops and brooms which are stored in the custodial closet on each floor.

MAINTENANCE -- If something is wrong in your room (like curtains that are coming down or a sticky lock) go to the front desk and report what needs to be fixed.

SECURITY
HOW TO KEEP YOUR PRIZED POSSESSIONS SAFE

Although Flagstaff and Northern Arizona University are relatively safe and generally melow places, security is a MUST!!

- Keep your room door locked, even if you're only going to be gone for a minute, it only takes a minute for someone to cruise in and rip-off your purse, cassette player or down jacket and those are mighty expensive to replace.

- If you see strangers hanging or snooping around the halls tell your counselor or the person working the front desk. The dorm is now your "home away from home" and you don't want any weirdo hanging around home, do you?

- NAU/ACVE is not liable for the loss of or damage to student personal goods housed in Northern Arizona University facilities unless caused by gross negligence on the part of NAU.

ROOMMATES
HOW TO LIVE IN A ROOM 12' X 15' WITH ANOTHER PERSON

Chances are that the next week will be filled with good times, laughs, raps and also those times when you'll just bug the heck out of each other! If you remember the three C's (communication, consideration, compromise) we'll bet you'll have more good times and not so many dramatic and unpleasant ones.

We're all brought up in different backgrounds, families and with different values and there are bound to be some differences and hassles. While you're living in your 12' x 15' space remember:

COMMUNICATION -- If you can create an open communication line with your roommate we can almost guarantee you smoother sailing.

If you get to know each other and talk about things that are bugging you before they become real problems it will make life a lot nicer and easier.

CONSIDERATION -- Always a must. Ask your roommate before you borrow the popcorn popper, calculator, girlfriend or boyfriend. Ask before you decide to have a party in your room -- remember it's only half yours. Try to put yourself in your roommate's shoes, and think how she would feel. When in doubt always ask and use the open communications you've built up.

COMPROMISE -- Is also something you'll have to learn to do while living in the dorm. There are so many people in such a small place and not everyone can do and have everything their way. A little give and take is necessary for you, your roommate, and the members of your floor.

**If you find the three C's aren't helping and you're having some problems (even little ones) with your roommate or floor members see your counselor. That's why they are there.

OTHER ITEMS OF INTEREST

PROFESSIONAL FOOD MANAGEMENT

University Dining

Monday - Friday

Breakfast	6:30 a.m. - 7:15 a.m.
Lunch	12:30 p.m. - 1:00 p.m.
Dinner	6:00 p.m. - 6:30 p.m.

You will be using a Valedine I.D. to use Professional Food Management.

*If you're sick and can't go to the cafeteria you can have your roommate check with your Counselor and get a sick tray taken to your room.

Junk Food

In the lobby you will find vending machines which have pop, candy bars, and other assorted delights (the desk has change for those dollars).

CHECKS, BILLS, AND BANKS
HOW TO TAKE CARE OF YOUR $

There are two automated tellers in front of the bookstore, Valley National Bank and Arizona Bank. No place on campus will cash a check, so you will need to bring pocket money for games, movies, or junk food.

HEALTH AND COUNSELING
HOW TO SURVIVE A COLD, THE FLU, OR A NERVOUS BREAKDOWN

The Fronske Health Center may not seem important now but when you have a cold from that water balloon fight or have the flu that's going around, it will be important. The Fronske Health Center has a regular staff of doctors and nurses, a pharmacy and lots more!

RULES, POLICIES AND PROCEDURES
HOW TO LIVE WITHIN THE SYSTEM

The following rules are made for safety and health reasons and to comply with laws. If you can follow these few rules it should make things more enjoyable for you and we'll have fewer hassles. Thanks!!!!!

-Student is responsible for the proper safekeeping of their dormitory room keys. Loss of keys during residence or failure to return keys at time of check-out will result in charges being assessed to the student for a change of lock. When a student is locked out of their room another key may be checked out at the lobby desk for twenty-five cents.

-Students are responsible for attending all classes, activities, workshops, and other scheduled events. Unexcused absences or tardies will result in a meeting with the student's instructor or group counselor.

-Students are required to remain with the group at all times.

-Students are financially responsible for any damage to NAU.

-Group Counselors may inspect a student's room if the Counselor has reason to believe the room is being damaged; student is violating the rules and/or the student is involved in a life-threatening situation. The Counselor will not search students' personal possessions (closets, drawers, clothes) unless student grants permission to the counselor.

-All students are responsible for being in their room during the designated room check time. (10:45 p.m.)

-Students only have access to the lounge pay telephone between 7:00 a.m. and 10:00 p.m. (Monday to Friday) and 8:30 a.m. - 10:00 p.m. (Saturday and Sunday). Students must use the pay telephone for all personal phone calls.

TELEPHONE AND MAIL
HOW TO COMMUNICATE WITH THE OUTSIDE WORLD

Mail -- this is probably the only time in your life you'll enjoy getting junk mail, to clean out those cobwebs in the mailbox. If you're one of those who gets important letters (love letters, money from home, cookies from Grandma, etc.) you should tell all to address your letters to:

Your name
c/o Summer Technical Institute
NAU C.U. Box 6025
Flagstaff, Arizona 86011

The mail will be delivered to the dorm once a day from the ACVE office. Mail will be distributed by the counselors daily. The Post Office is open Monday - Friday 7:30 a.m. to 4:30 p.m.

NOTE -- It takes a long time for letters to arrive, so mail may need to be sent on Monday to ensure delivery.

CLASS SCHEDULE

The ACVE office will supply you with supplies and materials to complete projects. Other supplies maybe purchased at the BOOKSTORE. Also, they have T-shirts, stationery, and lots of other good stuff.

We are all looking forward to spending a great week together. See you in June!

[redacted] 8, 15 [redacted] 9, 16 [redacted] 10, 17 [redacted] EDU[redacted] SUMMER TECHNICAL INSTITUTE 11, 18 12, 19 13, 20 14, 21

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURDAY	FRIDAY	SATURDAY
	Breakfast 6:30-7:15	Breakfast 6:30-7:15	Breakfast 6:30-7:15	Breakfast 6:30-7:15	Breakfast 6:30-7:15	Breakfast 6:30-7:15
	Computers 7:30-9:00	Computers 7:30-9:00	Computers 7:30-9:00	Computers 7:30-9:00	Computers 7:30-9:00	Clean Dorms & Pack 7:15 - 8:15
	Bus to Design & Technology 9:00 - 9:15	Bus to Design & Technology 9:00 - 9:15	Bus to Design & Technology 9:00 - 9:15	Bus to Design & Technology 9:00 - 9:15	Bus to Design & Technology 9:00 - 9:15	GRADUATION 9:00
	Refreshments & break 9:15 - 9:30	Sperry- Week 1 Motorola - Wk 2 9:15 - 9:45	Refreshments & Break 9:15 - 9:30	Refreshments & Break 9:15 - 9:30	Refreshments & Break 9:15 - 9:30	Free to go Home 10:00
	Instruction & Soldering 9:30 - 11:00	Soldering and Schematics 9:45 - 11:00	Radio Assembly 9:30 - 11:00	Radio Assembly 9:30 - 11:00	Mechanical Measurements 9:30 - 11:00	
	Break 11:00 - 11:30	Break 11:00 - 11:30	Break 11:00 - 11:30	Break 11:00 - 11:30	Break 11:00 - 11:30	Lunch (For those who need it) 12:00
	Presentation: Hughes Aircraft 11:30 - 12:30	Mack Corp Tour 12:00 - 1:00	Presentation: W.L. Gore 11:30 - 12:30	Presentation: Technical Speaker 11:30 - 12:30	Presentation: Garrett AIRES. 11:30 - 12:30	
ARRIVAL CHECK-IN 1:00 -- 4:00	LUNCH 12:30	Picnic at Sunset Crater 1:00 - 2:00	LUNCH 12:30	LUNCH 12:30	LUNCH 12:30	
	Geological Survey Tour 1:00 - 3:00	Seismograph 2:00 - 3:00	Comtec/Bottling T. 1:00 - 3:00	Eng. College Tou Physical Therapy 1:00 - 3:00	Lake Mary/wtr Measurement T. 1:00-3:00	
Engineering & Electronics hr. 5:00 - 6:00	Buffalo Park & Eldon Rd. Hike 3:15 - 6:00	Wapatki Indian Ruins & Sunset Crater Tour 3:30 - 6:30	Swimming-NAU 3:30 - 6:00	Soccer or Vollybl 3:30 - 6:00	Lake Mary Walk 3:30 - 6:00	
	Dinner 6:00 - 6:30		Dinner 6:00 - 6:30	Dinner 6:00 - 6:30	Dinner 6:00 - 6:30	
Dinner/Intro. 6:00 - 7:00	Nontraditional Careers & GIS 6:30 - 9:00	Picnic at Sunset Crater & Camp-fire, Career Dev 6:30 - 9:00	Career Developmnt Films 6:30 - 9:50	Career Develop, Hollands Interest Inventory 6:30 - 9:50	Movie or Student Time 7:00 - 10:30	
Counselors 7:00 - 9:00						
Room Check 10:45	Room Check 10:45	Room Check 10:45	Room Check 10:45	Room Check 10:45	Room Check 10:45	

Arizona Center for Vocational Education

GUIDES FOR BUSINESS PARTICIPANTS

TECHNICAL INSTITUTE FOR YOUNG WOMEN

June 8 - 21, 1986

GUIDES FOR BUSINESS PARTICIPANTS
TECHNICAL INSTITUTES FOR YOUNG WOMEN
Developed April 6, 1986 by Beth Packard

Ideas On What To Teach-

A. Tell about your job.

1. The level. technician or professional
2. Explain what you do in relation to others in your business or corporation
3. What disciplines of study are addressed by you?
4. What education or training is needed? What math or science are required?
5. What communication is needed?
6. What is the employment outlook for persons with your degree and experience? What are your transferable skills?
7. What does your type of job normally pay? Is this better than average for women?

B. Tell about your business and or corporation.

1. What products are produced?
2. What value to society do you place on your services?
3. How does one get ahead in your business? What skills must one possess?
4. What are the entry level positions in your company: the professional positions?
5. Why is it necessary for your company to make a profit?

C. Tell about a particular process.

a. manufacturing
b. design
c. development of prototypes
d. packaging
e. and so forth

E. Tell about yourself.

a. Do you have a family? If so. how do you balance work and family?

b. Were there barriers to getting where you are today? What were they?

c. What support is needed by women to succeed in nontraditional careers?

d. What are the benefits to your job?

Ideas for How to Present Your Information-

1. Be descriptive and visual when talking or telling. Use pictures or overheads that are large enough to see, colorful, and self-explanatory.

2. Use hands-on activities that allow the student to touch, see, or manipulate. Displays or demonstrations are excellent.

3. Use terminology with which the students are familiar when possible. When using unfamiliar terms, say the word, explain the word, and continue developing your concept. It should not be assumed students understand such words as "documentation," "simulate," or "dexterity." When in doubt, explain.

4. Relate known concepts of the girls to the unknown concept you wish to present.

Summary of Summer Technical Institute

More than 50% of the workforce are now women, yet nearly 70% of those women are concentrated in three occupational groups, most of which are traditionally low paying.

Increasingly all types of companies, from manufacturing concerns to service industries, will become reliant upon computers and electronics to curb costs and boost profits. For modern women to become part of the new economy, changes in social and personal career perceptions must be made. It is for this purpose that two summer institutes have been funded at the Arizona Center for Vocational Education to introduce girls to the potential for careers in nontraditional fields.

The premises of these institutes are:

1. Girls should be encouraged to expand their horizons and consider technical careers.

2. Structured activities should be provided as an introduction to technical careers, and to develop confidence in personal ability.

3. Opportunities for interaction with successful role models should be available in training situations.

4. Women and girls need support and encouragement to plan nontraditional careers, especially technical careers.

Details of the Institutes

Dates: Two one-week sessions are planned at Northern Arizona University beginning June 8, 1986. The attendees will arrive on a Sunday and leave for home by Saturday at 10:00 a.m.

Population: Girls will be nominated from throughout the state. Each institute is planned for twenty-six participants.

Costs: Tuition per student is $150.00. This fee covers room, board, transportation to field sites, and miscellaneous costs.

Supervision: Counselors will provide supervision twenty-four hours per day.

Instruction: Paid instructional personnel will be assisted by representatives from local and metropolitan based industries. Industries indicating a desire to participate are: Intel, Hughes Aircraft, W. L. Gore and Associates, Sperry Corporation, and Comtec Economation. Exposure to technical careers will be provided through a variety of prototype hands-on activities and career exposure methods, including field trips, demonstrations and career development with the Arizona Career Information System computer-based program. Each girl will complete a self-assessment of values, skills, interests, and aptitudes which will be matched with possible jobs and careers. Computer experiences will be provided each day.

Selection Process: Girls will be nominated by an agency or school counselor and will be selected to the institutes based upon interest and aptitude for math, science, electronics, or technical areas. Aptitude for math should be demonstrated by scores on a standardized achievement test.

Planned activities: Activities will be scheduled for the entire day and will include planned recreation and entertainment as well as release time.

Next to stand was Mentor, comrade in arms of the prince Odysseus, an old man now. Odysseus left him authority over his house and slaves, to guard them well.

from Homer's Odyssey

Mentoring: It's Not What You Thought—It's More!

by Dr. Pamela Gray

Almost 3,000 years ago, Homer introduced the world to a character called Mentor. This wise, old man advised and helped not only the family of the prince Odysseus, but also Odysseus' young son, Telemachus.

Build Your Own Mentor

Although ancient Mentor is long gone, the concept of *mentoring* is alive in the workplace.

The classic definition of a mentor is an older, wiser, more experienced person who takes you by the hand (psychologically!) and guides you in entering the world of work and in developing your career.

Not so today, says Dr. Kathy Kram, assistant professor of organizational behavior in the School of Management at Boston University.

"The way it's defined classically is not that common an experience. I don't think most people find that kind of special relationship. Some people have it, but more often they have bits and pieces of it."

Kram has countered the mythology surrounding mentoring with research. She wanted to find out what can and does happen when a more experienced person helps a less experienced person at work.

Kram's major finding is that career success isn't dependent on the aid of a single mentor. Rather, the answer to success lies in a variety of personal and work relationships.

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Research Related to Girls and Math

Research in the area of girls and math falls within two distinct categories: research that focuses on the process of socialization and its subsequent effect on math performance, and research aimed at discerning biological gender differences related to math ability and performance. Current instruments and measurement techniques are not precise enough to accurately measure the very small biological differences that may exist. More importantly, research on biological differences is inconclusive. There is however, a plethora of research that illuminates and supports the concept that real and observable socialization processes can and do affect girls' performance in math and science.

The Three Domains of Socialization

Research examining socialization can be categorized into three major domains. The physical domain deals with the physical world and its properties. The social domain encompasses our socio-cultural existence. The perceptual domain, is the by-product of the interaction between the physical and social domains. It is more abstract than the other two, less straightforward and generally more difficult to change.

The effects of the perceptual domain are often only recognized over time, as the interactions of the physical and social domains become more integrated and pronounced within individuals. These variations become differing cognitive styles, which effect how we learn. When examining the issue of girls and math, we must explore the pervasiveness, complexity, and realities of the perceptual domain and its relation to gender, math motivation and performance.

The Perceptual Domain

Each child's perceptual orientation evolves as her or his social and physical domains interact. Usually girls are more often reinforced to interact on a social level. The intensity of this social interaction increases a girl's ability to interact with, and be familiar with the social realm. Her knowledge of social rules often becomes her primary cognitive style. If math classes ignore interactive motivation, many girls then feel uninvolved.

Within the classroom setting, teacher expectations can affect the performance and motivation of female students. Troworidge et al., (1981) found that boys in school are "valued for thinking logically, independently, with self-confidence, and an appropriate degree of risk-taking. Girls, however, are valued for their emotional expressiveness, sensitivity to others, dependency, and subjective thinking." Research also suggests that teacher praise, in terms of math performance, is perceived differently by boys and girls. Eccles-Parsons, et al. (1982) found that, "...praise was related to (high) self-concept of ability for boys only." When efforts were made to encourage and praise boys and girls equally, boys were more likely to equate praise as positive reflections on their ability and subsequent self-concept. Girls were more likely to attribute praise to luck. They then were more likely to question their abilities as math achievers, resulting in a general lack of confidence which often affected their math course selection (Fennema and Sherman, 1977).

The Physical Domain

Developmental differences in the physical domain can also lead to disparities within the classroom. Interests and style of play for boys may help them achieve success in math and science. Boys watch more TV science shows, read more books, magazines, and newspaper articles on science, and work more with science projects and hobbies (NAEP, May 1978). Female difficulties with spatial visualization may be the result of less knowledge and experience with manipulative materials (Fennema and Sherman 1977). Skoinick, et al. (1982) also support this observation: "the factors most critical to the development of spatial visualization skills are experience with manipulative materials such as constructing and examining three-dimensional structures, graphing, and modeling." These skills are also important within the classroom, where girls demonstrate more difficulty working with science equipment and apparatus (Kanle 1983). These factors then tend to be mutually reinforcing, hampering the development of strong

spatial visualization skills and other opportunities to nurture interests related to math and science.

Peer Group Factors

Social and peer group factors within the school also mold the child's perceptions about her/his skills and desire to participate in math or science. Vockell and Lobonc (1981) found that girls enrolled in public schools selected subjects traditionally viewed as "masculine" such as calculus, chemistry, and physics less often than males, in spite of equal abilities. Enrollment patterns can even affect a girl's self-concept in relation to math and science. Skolnick, et al. (1982) observes: "Typically, a girl who wishes to pursue advanced science courses finds her fear that 'girls don't become scientists' reinforced clearly by the ratio of boys and girls in the classroom."

Family Factors

Parent expectations can play a major role in the development of a child's self-concept of math ability. Eccles, et al. (1982) found that the most dramatic differences between parents of girls, and parents of boys, were their estimates of how hard their children had to try, to do well in math. She found that parents of girls consistently perceived the effort of their daughters to be more difficult than the efforts of sons. Eccles also states, "parents of sons thought that advanced math was more important for their child than parents of daughters." Similarly, she found that, "children's attitudes were influenced more by their parents' attitudes about their abilities than by their own past performances."

Additional research by Jacobs and Eccles (1983) focused on the impact of media reports on parents' perceptions of gender differences and math ability. Exposure to media reports...(which reaffirmed the genetic difference concept) had its largest impact on mothers of daughters and fathers of sons." These reports reinforced parents' own stereotypic beliefs concerning gender and math ability. For mothers it provided a legitimizing of their own math difficulties and tacit approval of their daughters' difficulties in math. Fathers of sons stereotypical impressions were also reaffirmed toward the belief that boys are better than girls in math.

Usefulness of Math

Pedro, Wolleat. Fennema and Becker (1981) found that usefulness was second only to prior performance as a predictor of future math enrollment. Armstrong (1981) found students considered usefulness as the most important reason in deciding to continue to enroll in math classes, while Eccles (1983) found that when compared to boys, girls believed that math was of less value. Students must see the usefulness of math in order to continue studying it.

Attributional Style

Attributional style is the way individuals explain academic success or failure. A student who attributes failure to lack of skill or ability will have little reason to expect future success from the same amount of effort. Concommitantly, attributing failure to lack of effort encourages the possibility of success in the future, because it is within the control of the individual. Wolleat, Pedro, Becker, and Fennema (1980) found that males attributed their success more strongly to ability, whereas females tended to attribute their success more strongly to effort. In terms of failure, girls were more likely to attribute their shortcomings to lack of ability or difficulty of task. At all levels of achievement, females were more likely to attribute their success to effort, and as their performance level increased, the degree to which they attributed their work to effort also increased. Contrarily, as achievement increased for males, the extent to which they attributed their success to effort decreased. Similarly, Eccles (1983) found that females were more likely to attribute their successes to effort and their failures to lack of ability.

We must take the socialization research into account when we devise instructional strategies for teaching math equitably. Differences in perceptual orientation. cognitive style, and motivation are all important to understand when designing a math curriculum that will meet needs of female and male students.

- Dave Dugger